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# RTO Technical Publications:

## a quarterly listing

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**20020016329** Research and Technology Organization, Information Systems Technology Panel, Neuilly-sur-Seine, France  
**Information Management Challenges in Achieving Coalition Interoperability** *Les Defis de la Gestion de l'Information dans la Mise en Oeuvre de l'Interoperabilite au Sein d'une Coalition*

December 2001, 302p; In English, 28-30 May 2001, Quebec, Canada; See also 20020016330 through 20020016354; CD-ROM contains full text document in PDF and PowerPoint format; Original contains color illustrations

Report No.(s): RTO-MP-064; AC/323(IST-022)TP/11; ISBN 92-837-1078-9; Copyright Waived; Avail: CASI; C01, CD-ROM; A14, Hardcopy; A03, Microfiche

Increasingly, sensor Unmanned Aerial Vehicles (UAV) are utilized to gather intelligence data, and combat UAVs are being proposed as complementing manned aircraft. In addition, alternative operations concepts are being proposed for the cooperative use of manned and unmanned aerial vehicles. The workshop achieved its objectives of identify requirements and technical issues. It defined and, to some extent prioritized, key areas to be addressed by the follow-on RTO (Research and Technology Organization) SCI-124 Task Group on the same subject. It established the need for architectures that enable interoperability in NATO (North Atlantic Treaty Organization) mixed manned and unmanned air operations, as current approaches were unlikely to accomplish this task well. This would allow better battle management and C4ISR, as well as the basis for dynamic planning, monitoring and intervention. The workshop highlighted the need to define the concept of operations, including rules of engagement and command and control hierarchy, before defining architectures.

Author

*Pilotless Aircraft; Information Management; Conferences; Military Operations; Armed Forces*

**20020018045** Research and Technology Organization, Neuilly-sur-Seine, France

**RTO Technical Publications: A Quarterly Listing** *Quarterly Report, 1 Oct. - 31 Dec. 2001*

December 2001, 1p; In English

Report No.(s): RTO-01-04; Copyright Waived; Avail: CASI; A01, Hardcopy; A01, Microfiche

The objective of this AGARDograph is to provide an introductory overview of logistics test and evaluation methods for supportability testing. This AGARDograph is an attempt to put into print the approach and techniques for a test team to execute logistics/supportability test and evaluation. To do so, the logistics/supportability test and evaluation process is subdivided into manageable functional areas and disciplines called Integrated Logistics Support (ILS) elements. The 10 ILS elements are: maintenance planning; manpower and personnel; support equipment; computer resources; facilities; packaging, handling, storage, and transportation; and design interface. Whether a program is a large one, like a new F-22 aircraft, or a small one, like a new 25K Loader, all logistics elements must be evaluated for applicability to the program. The only change between large and small programs is the depth of effort to be performed in each element. Examples will be provided to discuss the test and evaluation technique to each area and are adaptable to the reader's particular area of

interest. This volume should complement the AG-300 Vol.13 on 'Reliability and Maintainability.'

Author

*Logistics; Flight Tests; Support Systems*

**20020018829** Research and Technology Organization, Applied Vehicle Technology Panel, Neuilly-sur-Seine, France  
**Ice Accretion Simulation Evaluation Test *Essai d'Evaluation de la Simulation de l'Accumulation de Glace***

Kind, R. J., Research and Technology Organization, France; November 2001, 32p; In English; CD-ROM contains full text document in PDF format

Report No.(s): RTO-TR-038; AC/323(AVT-006)TP/26; ISBN 92-837-1072-X; Copyright Waived; Avail: CASI; A03, Hardcopy; A01, Microfiche

The NATO-RTO Task Group assessed computer codes for the prediction of ice accretion on aeroplanes which is an important flight safety issue. The following topics were treated: 1) state of the art; 2) review codes in use or being developed; 3) provide reliability data for regulation and certification; 4) ice shape comparison methods; and 5) critical research needs. In order to compare the detail of codes a workshop was held involving experts from various institutions and companies.

Author

*Computer Programs; North Atlantic Treaty Organization (NATO); Computerized Simulation; Aircraft Icing; Aircraft Performance; Aeronautics; Flight Tests*

**20020024644** Research and Technology Organization, Systems Concepts and Integration Panel, Neuilly-sur-Seine, France  
**Flying Qualities Flight Testing of Digital Flight Control Systems, Volume 21 *Les Essais en vol des Performances des Systemes de Commande de vol Numeriques, Volume 21***

Webster, F., Air Force Flight Test Center, USA; Smith, T. D., BAE Systems, UK; December 2001, 124p; In English; CD-ROM contains full text in PDF format

Report No.(s): RTO-AG-300-Vol-21; AC/323(SCI-034)TP/39-Vol-21; ISBN 92-837-1075-4; Copyright Waived; Avail: CASI; C01, CD-ROM; A06, Hardcopy; A02, Microfiche

This document covers the basics of flying qualities flight testing for digital flight control systems. Most of the techniques and subjects discussed also apply to analog systems as well. The techniques discussed are by no means the only techniques available, nor are they necessarily applicable to every flight test program. Rather, they are a collection of best practices from organizations across NATO, which practice the subject matter. The author hopes that the contents of this text will provide a comprehensive overview of the subject appropriate for experienced engineers, as well as provide a learning source for those new to the subject matter.

Author

*Flight Control; Flight Tests; Systems Engineering; Flight Characteristics; Digital Systems; Analog Data*

**20020026728** Research and Technology Organization, Applied Vehicle Technology Panel, Neuilly-sur-Seine, France  
**Supercavitating Flows *Les Ecoulements Supercavitants***

January 2002, 558p; In English, 12-16 Feb. 2001, Brussels, Belgium; See also 20020026729 through 20020026748; CD-ROM contains full text document in PDF format; Original contains color illustrations

Report No.(s): RTO-EN-010; AC/323(AVT-058)TP/45; ISBN 92-837-1074-6; Copyright Waived; Avail: CASI; C01, CD-ROM; A24, Hardcopy; A04, Microfiche

The Lecture Series organized by NATO-RTO and VKI dealt with high speed hydrodynamics and the flow condition of supercavitation. This refers to the generation of large cavities around wetted bodies. Treated were theory, experiment and computation of: (1) Supercavitating Motion. (2) Variational Methods in Cavitation Flow, (3) Independence of the Cavity Sections. (4) Logvinovich's principle. (5) Nonlinear Supercavitating Flows. (6) Artificial Supercavitation. (7) Dynamic Processes of Supercavitation. (8) Oscillations of Ventilated Cavities. (9) Cavity Dynamics. (10) Multiphase CFD Modelling. (11) Control of Supercavitation Flow. (12) Stability of Supercavitating Motion. (13) Supercavities in Compressible Fluid. (14) Supercavitating Object Propulsion. (15) Small Perturbation Theory. (16) Supercavitating 2-D and 3-D Hydrofoils. (17) Supercavitating Propellers. Unfortunately only 15 of the original 18 presentations were available for print.

Author

*Hydrodynamics; Flow theory; Supercavitating Flow; Nonlinearity; Compressible Fluids*

**20020029433** Research and Technology Organization, Systems Concepts and Integration Panel, Neuilly-sur-Seine, France  
**Tactical Decision Aids and Situational Awareness** *Les Aides a la Prise de Decisions Tactics et la Connaissance de la Situation des Forces*

January 2002, 96p; In English, 1-2 Nov. 2001, Amsterdam, Netherlands, 8-9 Nov. 2001, Sofia, Bulgaria, 12-13 Nov. 2001, Madrid, Spain, 19-20 Nov. 2001, MD, USA; See also 20020029434 through 20020029439; CD-ROM contains full text document in PDF format; Original contains color illustrations

Report No.(s): RTO-EN-019; AC/323(SCI-113)TP/41; ISBN 92-837-1080-0; Copyright Waived; Avail: CASI; C01, CD-ROM; A05, Hardcopy; A01, Microfiche

Today, the use of decision aids systems for commander and operators in the battlefield area is playing an important role due to the new frequent situation of joint coalition and asymmetric warfare in which the defense forces are involved. On these occasions, the capability of own forces to have the evolution of the tactical situation in real time is extremely important. Since combat survival and mission accomplishment depend upon operators performance in the process of decision-making, and the operator performance depends upon the degree of awareness, situation awareness can be seen as a result of a continuous assessment of situation parameters by the operators. This mission critical chain of sub-segment functions is greatly influenced by the nature of the technical systems the operator is leading with.

Author

*Situational Awareness; Decision Support Systems; Decision Making*